

**TODILTO**  
**EXPLORATION AND DEVELOPMENT CORPORATION**

G. WARNOCK  
PRESIDENT

H. B. (CHICK) WARNOCK  
VICE PRESIDENT - FINANCE

March 24, 1980

Mr. Brown Vandever  
P. O. Box 262  
Prewitt, New Mexico

Dear Mr. Vandever:

In order to meet U.S.G.S. exploration guidelines for the construction of the two major roadways shown on the enclosed Map D-14, Todilto Exploration and Development Corporation requests that you read and sign the statement below.

Sincerely,



Timothy J. Pearson  
Exploration Geologist

TJP:dt  
Enclosure

I have seen Map D-14 and understand the general locations of the two proposed roadways on the southeast side of Haystack. I hereby give permission to Todilto Exploration and Development Corporation to construct these two roadways.

3/24/80  
Date

BROWN VANDEVER  
Brown Vandever

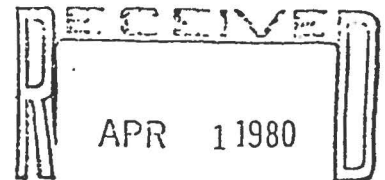
- 5.2 The only water well known to exist in the area is located in the north-east quarter of Section 19. It is stratigraphically collared in the Entrada sandstone well below the mine's stratigraphic horizon, and will not be affected by either the drilling or any mining operations.

6. ENDANGERED SPECIES

- 6.1 As listed on Page 2, Paragraph 4, of the original exploration plan, these are the only known inhabitants, and no endangered species are known to inhabit the proposed exploration area.

EXPLORATION PLAN

Southwest Quarter - Section 18



U.S. GEOLOGICAL SURVEY  
ALBUQUERQUE, NEW MEXICO

Submitted herein is the exploration plan for Navajo-allotted land located in the southwest quarter of Section 18, Township 13 North, Range 10 West, McKinley County. The exploration plan as submitted outlines a minimum of 160 to 165 exploration drill holes, with a possibility of 1,000 fill-in holes on 25-foot centers.

We are requesting permission to commence the 1200 haulage drift advance across the property line immediately. Advance will be at least 300 to 500 feet east and will include north and south cross cuts. This work will commence before any archaeological studies or final approval of the surface drilling programs are made, since there will be no surface impact on the area (see Map D-14).

Todilto, if requested, will contract with an archaeologist to inspect the southwest quarter of Section 18 in order to determine the presence of surface archaeological manifestations. Road and drill site locations may be altered somewhat, based on an archaeological clearance. The purpose of drilling is to extend and delineate uranium reserves east of the Haystack underground operation, as indicated on the map. For this, Todilto is now seeking written approval from the Bureau of Indian Affairs and Brown Vandever for permission to drill within 50 feet of any dwelling. Once approvals are signed, they will be forwarded to your office.

Todilto is also proposing two major roadways on the southeast side of Haystack. These roads will begin from an already established road on the east side, and follow the 7400 and 7550 foot contours. Both roads will end at the west section line of Section 18, or when road construction becomes impossible (see Map D-14).

Mineral rights to the southwest quarter of Section 18 belong to Brown Vandever, who was allotted the land from the BIA. If the southwest quarter of Section 18 goes into production, Mr. Vandever will receive 100% of the royalty based on the royalty rate given to us in the approved lease.

Todilto also has mineral rights to BLM land in the northwest quarter of Section 18, which are staked as the Tess 1 through 10 claims. Additionally, mineral rights to the southeast quarter, the south half of the north half of Section 13, are owned by the Department of Energy and leased to Todilto. The surface rights are reserved for the use of the Navajo Nation by the Public Land Order, #2178, dated August 26, 1960. Todilto additionally holds BIA Lease #N00-C-14-5681 on the north half of the north half of Sections 11 and 13. Todilto holds mineral rights to the north half of the northwest quarter of Section 19, T13N, R10W, and the southwest quarter of Section 13, T13N, R11W, by lease from the Santa Fe Pacific Railroad Company.

Physiographically, the area is in the Colorado Plateau province. The most prominent feature in the area is Haystack Mountain, which has a maximum elevation

EXPLORATION PLAN

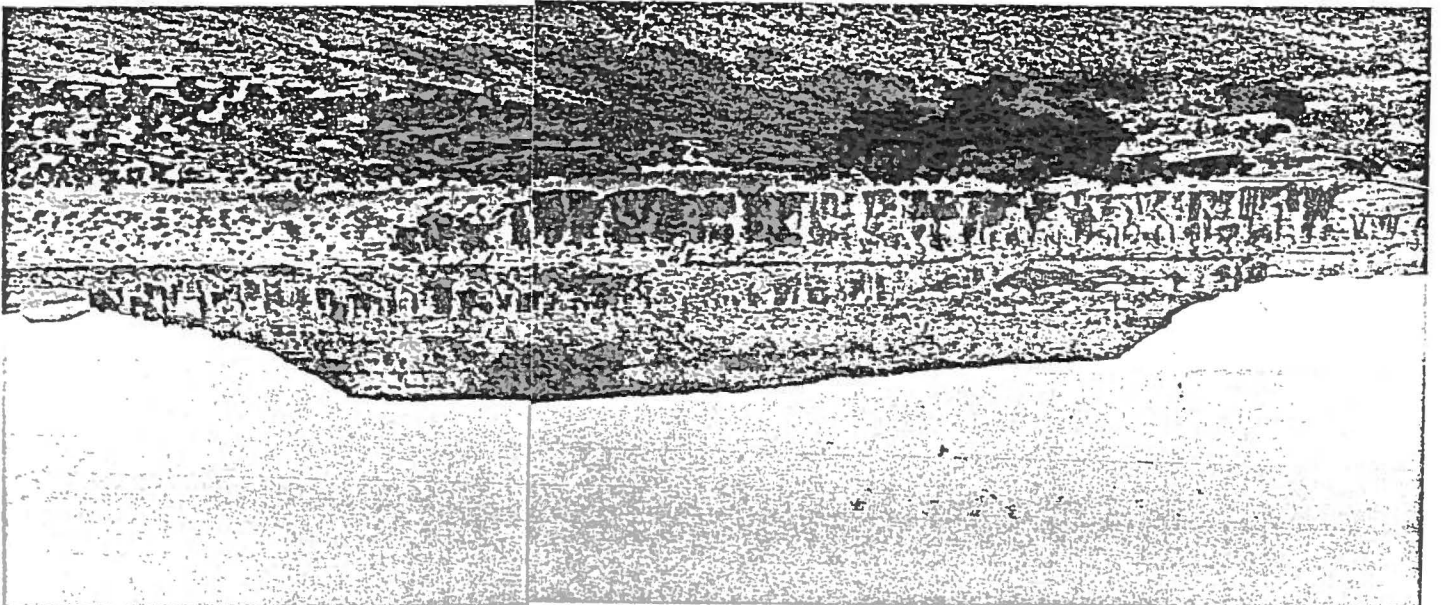
APPENDIX H



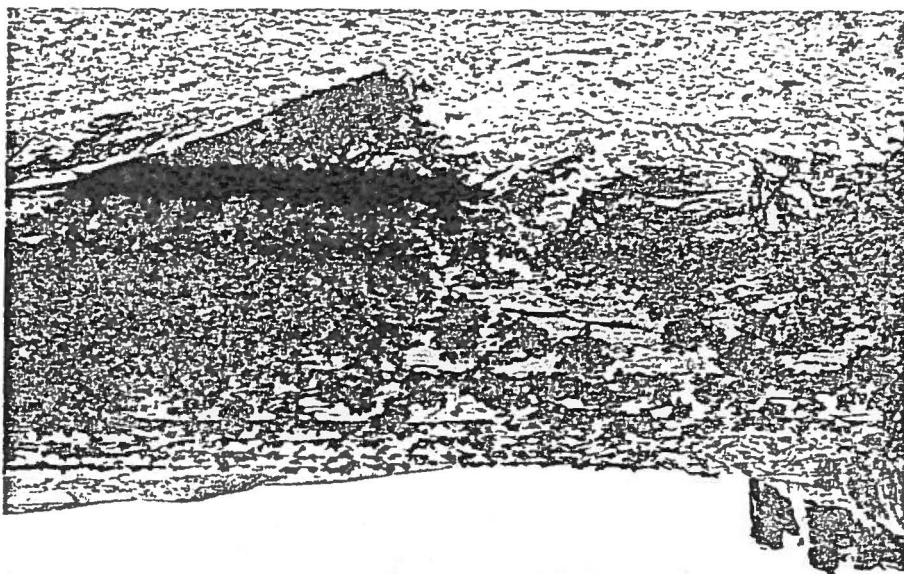
The Old Mesa Mine on the lease site.



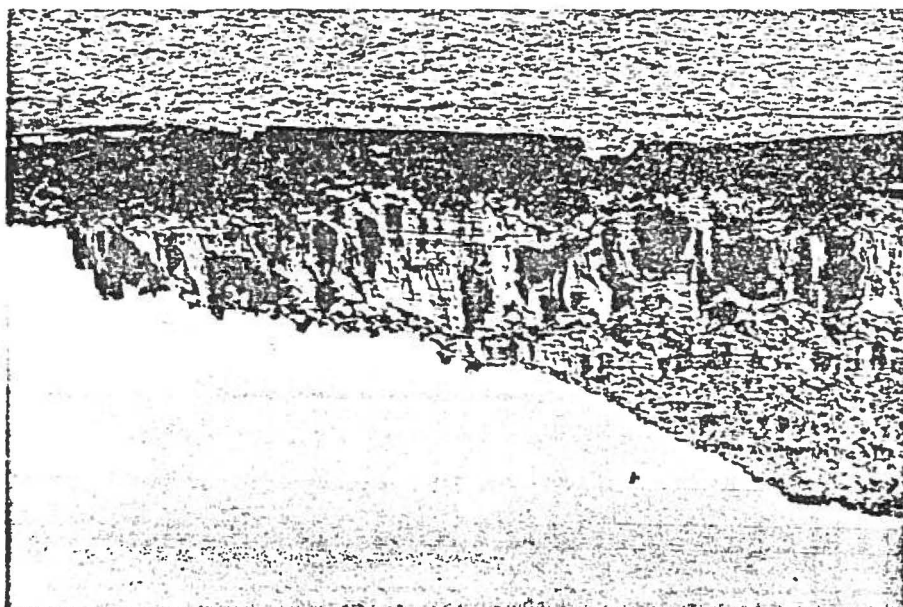
Haystack Mountain.



Lease surface looking east from the west  
edge of the lease.



Southeast side of Haystack Mountain (this  
part is included in the leased area).



PHOTOGRAPHS

APPENDIX G

P. O. Box 26124  
Albuquerque, New Mexico 87124

April 22, 1980

NOTICE

The United States Geological Survey has received a proposal from Todilto Exploration Development Corporation to explore for uranium in the Southwest Quarter, Section 18, Township 13 North, Range 10 West, N.M.P.M. This is in Navajo Allotted Mining Lease N00-C-14-20-8369.

An exploration plan covering the proposed activities has been submitted, and may be reviewed by any interested party at the following address:

U. S. Geological Survey  
Conservation Division  
Office of the Area Mining Supervisor  
505 Marquette Street, NW  
Room 1027  
Albuquerque, New Mexico 87125

(ORIG. SGD.) DAVID R. SITZLER  
David R. Sitzler  
Mining Engineer

cc: File -8369  
Chrono

DRSitzler:ab: 04-22-80

P. O. Box 26124  
Albuquerque, New Mexico 87125

April 22, 1980

Cecilia S. Rangel  
County Clerk  
McKinley County  
Gallup, New Mexico 87301

Dear Ms. Rangel:

Enclosed are public notices for a proposed exploration plan and a proposed interim mining plan near Prewitt, New Mexico. Please post these notices in a prominent place for public viewing. Thank you.

Sincerely yours,

(Copy SCR) David R. Sitzler  
Mining Engineer

Enclosures (2)

cc: File -8369  
Chrono

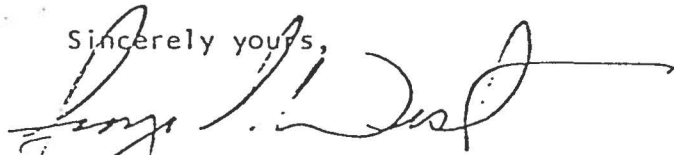
DRSitzler:ab: 04-22-80

PUBLIC NOTICE

APPENDIX F

If you have any questions concerning this clearance, please contact Bruce Panowski, Archeologist with this office. He can be reached at (505) 988-6561.

Sincerely yours,



George G. West  
Supervisory Archeologist, Branch  
of Indian Cultural Resources

Enclosures

cc:

BIA, Navajo Area Office, Window Rock, AZ (2)

Dr. David Doyel, Cultural Resource

Management Program, Window Rock, AZ

U.S.G.S., Albuquerque, NM

S.H.P.O., New Mexico

Dr. Joseph Winter, OCA, Albuquerque, NM

### Localities

1. Lithic Scatter	SW $\frac{1}{4}$ , SE $\frac{1}{4}$ , NW $\frac{1}{4}$
2. Hearth	SW $\frac{1}{4}$ , SW $\frac{1}{4}$ , NW $\frac{1}{4}$
3. Corral	SE $\frac{1}{4}$ , NW $\frac{1}{4}$ , SW $\frac{1}{4}$
4. Lithic Scatter	SW $\frac{1}{4}$ , NE $\frac{1}{4}$ , SW $\frac{1}{4}$
5. Poss. Lambing Pen	SW $\frac{1}{4}$ , NE $\frac{1}{4}$ , SW $\frac{1}{4}$
6. Abandoned Mine Site	NE $\frac{1}{4}$ , SW $\frac{1}{4}$ , SW $\frac{1}{4}$

In addition, nine isolated occurrences were recorded throughout the survey area.

Your office has submitted to us an exploration plan and maps indicating 157 proposed drilling areas and associated access roads. In a telephone conversation with us on May 29, 1980, you indicated the area of disturbance for each drill hole would be approximately 1/10 of an acre (approximately 66' x 66'). The addendum to the exploration plan specifies access road widths will be 16 feet. Two major roadways are proposed across the northern portion of the SW $\frac{1}{4}$ , Section 18, and are indicated on Map D-14.

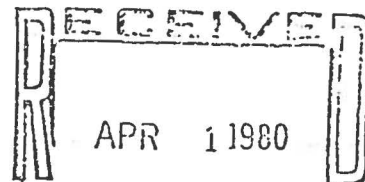
Provided that all ground breaking activity take place within the specified areas, we feel the project will have no impact on cultural material. Therefore, archeological clearance is granted for the 157 proposed drilling locations, the two proposed roadways, and the associated drill access roads described herein and indicated on Map D-14 (as revised 5/28/80).

Should any previously unrecorded and/or previously undetected cultural material be discovered during construction operations, all work must cease in the immediate area of the exposed resources. Archeologists from this office and the Office of Contract Archeology should then be notified to arrange an on-site inspection to determine the significance and disposition of the archeological remains.

It is the responsibility of project sponsors to notify subcontractors of the boundaries of the archeological clearance and stipulations under which clearance is granted.



ADDENDUM TO EXPLORATION PLAN  
SW $\frac{1}{4}$ , Section 18, T13N, R10W



U.S. GEOLOGICAL SURVEY  
ALBUQUERQUE, NEW MEXICO

1. NATIONAL PARK SERVICE ARCHEOLOGICAL CLEARANCE

- 1.1 Todilto Exploration and Development Corporation has contacted Mr. Joe Winters of the Archeological Department of the University of New Mexico concerning an archeological survey of Southwest 18. The survey, once approvals are made, could begin within the next two weeks.
- 1.2 Once the clearances have been approved, Todilto will immediately forward them to your Department. We fully understand that no surface disturbance activity will start until the clearance is issued.

2. PLUGGING OF BOREHOLES WHEN GROUNDWATER IS ENCOUNTERED

- 2.1 Todilto has extensively drilled the Haystack area and has never encountered any groundwater. However, in the event we do, Todilto will follow the normal procedures as outlined on Page 2, Paragraph 7, and will follow any other requirements stipulated by the New Mexico State Engineer.

3. ROADWAYS

- 3.1 Todilto will have written approval from Brown Vandever (Lessor) concerning the construction of proposed roadways on the southeast side of Haystack. Todilto hereby amends the average roadway widths from 18 feet (Page 2, Paragraph 8), to 16 feet. Also, Todilto will gain access to drill sites from lands already occupied by Todilto whenever possible.
- 3.2 Road maintenance will primarily be done by our D-8K Cat and will include, when needed, blading, ditching and possible improvements to existing roads. Erosion controls will be used where needed. Erosional control will be accomplished with the use of waterbars, retention pits, if necessary, and possible reseeding.

4. 1200 HAULAGEWAY EXTENSION

- 4.1 Permission is requested to immediately drive Todilto's existing 1200 North haulageway due east into the subject lease, per our submitted Interim Mining Plan of same date.

5. SURFACE AND GROUNDWATER

- 5.1 No surface water, either as springs, ponds or water tanks, are known to exist in or around Southwest 18, nor has there been any groundwater encountered in either the drilling or in the Haystack underground operations. It is thus firmly believed that no aquifers exist in any of the formations that will be drilled or mined.

Age	Formation	Unit	Lithology	Columnar Section
JURASSIC	Summer-ville formation		Reddish-brown sandstone, massive to thin bedded, fine, grained, well sorted, fluvialite.	
			Pale grayish-green mudstone	
	Todilto limestone	intertonguing zone	Light gray siltstone and sandstone with limestone lenticles; sandstone is fine-grained, massive, and calcareous; limestone is light and medium gray, massive, and very coarse-grained.	
		"crinkly" (recrystallized) zone	Mottled medium and dark gray limestone; thin crenulated bedding highly recrystallized coarse-grained, local silty lenses	
		platy zone	Thick-bedded gray limestone	
			Light to medium gray, alternating thick and thin bedded, very fine-grained dense limestone.	
	Entrada sandstone		Sandy limestone.	
			Reddish-brown sandstone, fine-to medium-grained, well sorted; uppermost five feet bleached white; eolian cross bedding.	

7 feet  
0

April 1956 RME - 120

Figure 3. Stratigraphy of the Todilto limestone and portions of adjacent formations in the vicinity of Haystack Butte, McKinley County, New Mexico

System	Series	Group	Formation	Rock Type	Thickness (ft.)
Quaternary	Recent and Pleistocene			Sand, gravel, loess	0-100
			UNCONFORMITY	Cinders, basalt	0-200
Cretaceous	Upper	Mesaverde	Gallup sandstone	Sandstone	60-120
			Mancos shale	Shale	850-900
			Dakota sandstone	Sandstone, shale, coal	50-100
	Lower		UNCONFORMITY		
Jurassic	Upper	Morrison (m.)	Brushy Basin mbr.	Mudstone, siltstone, ss.	45-100
			Westwater Canyon mbr.	Sandstone	125-165
			Recapture mbr.	Siltstone, mudstone	125-245
		San Rafael	Bluff sandstone	Sandstone	100-300
			Summerville formation	Sandstone, siltstone, shale	150-200
			Todillo limestone	Limestone	25-35
			Entrada sandstone	Sandstone	135-150
			Carmel formation	Sandstone, siltstone	35-50
			UNCONFORMITY		
		Glen Canyon	Wingale sandstone	Sandstone	110-120
Triassic	Upper		Chinle formation	Mudstone, siltstone, sandstone, conglomerate	1200-1600
	Lower and Middle(?)		UNCONFORMITY		
			Woenkopi formation	Siltstone, mudstone	25-50
Permian	Leonard		UNCONFORMITY		
			San Andres limestone	Limestone, sandstone	95-130
			Glorieta sandstone	Sandstone	200-375
			Yeso formation	Siltstone, sandstone, mudstone, limestone	850-1000
	Eolcamp		Abo formation	Siltstone, sandstone, conglomerate	600-650
Pennsylvanian(?)				Conglomerate, arkose, sandstone, shale, limestone	0-150
Precambrian			UNCONFORMITY	Granite, gneiss, metarhyolite, schist	

After W. L. Chenoweth

Table 2. Stratigraphic chart, Haystack Butte and vicinity, northeast flank of the Zuni Uplift, New Mexico

EXPLORATION PLAN

- I LESSOR: Brown Vandever  
ADDRESS: P.O. Box 262, Prewitt, New Mexico 87045
- II LESSEE: Todilto Exploration and Development Corporation  
ADDRESS: 3810 Academy Parkway South, N.E.  
Albuquerque, New Mexico 87109  
  
PHONE: (505) 345-8391
- III CONTRACT DRILLER:  
ADDRESS:  
PHONE:
- IV Exploration Area  
Legal Description: Southwest quarter, Section 18, T13N, R10W  
McKinley County  
CONTRACT NUMBER:  
ANNIVERSARY DATE: March 24, 1980
- V STATEMENT OF INTENTIONS:

<u>OBJECTIVES:</u>	<u>MINIMUM # OF HOLES</u>	<u>MINIMUM TOTAL FOOTAGE</u>	<u>APPROX. TIME FACTOR (DAYS)</u>
Exploration Drilling with the possibility of 1000 maximum fill-in holes.	165 <i>av. 123 ft deep</i>	20,300	25
Drive the 1200 (immediately) Haulage Drift East with North and South Cross-cuts.		300-500 feet east	60
Reclamation Contouring, leveling, reseeding			30
Backfill Holes			Depending on total number of holes; 10 holes/day

- VI Anticipated area disturbed: Approximately 23 acres.  
Sites: 0.1 acres per site: Approximately 11 acres.  
Road construction  
(for access) Approximately 12 acres.
- VII Required Maps: 103-007-015-18 D-14 Scale 1"=100 feet

Respectfully submitted,  
February 29, 1980



Tim Pearson

Once drilling is completed, each drill site will be leveled, contoured and reseeded with grass according to recommendations made by the Lessor and the Area Director. All holes will be backfilled, with the last five feet as a cement plug, and marked with a 2-inch by 2-inch by 3-foot wood stake.

All trash and debris shall be transported from the lease area and disposed of in the covered land fill site at Haystack Mine.

of 7,833 feet and is a flat-topped, elongated mesa. The area of drilling varies in elevation from 6,900 to 7,600 feet.

The drilling area cover consists of weathered and unconsolidated Westwater and Bluff sandstone, with Dakota talus on the southeast side of Haystack to a blow-sand cover on the flat. Vegetation consists of various grasses, juniper, pinon and minor cactus.

The climate is semi-arid, with an average annual precipitation of about 12 inches, occurring mostly as rain in July and August.

Wildlife consists of rabbits, lizards, and a variety of birds with an occasional coyote or bobcat. No permanent damage is expected to result to the inhabitants or their natural environment.

The land is used locally by the owners for grazing. Portions of the area have been fenced off for livestock control.

Figure 3 and Table 2 are general stratigraphic cross-sections for the vicinity of Haystack Butte. Structurally, beds generally dip from  $3^{\circ}$  to  $5^{\circ}$  northeast. Minor east-west and northeasterly-trending normal faults displace beds from 1 to 85 feet locally. No geologic hazards, such as toxic or explosive gases, are known to exist, and no unusual conditions are expected. All drill holes will be collared in the Summerville formations except on the southeast side of Haystack, where the holes will collar in the middle or lower Westwater unit. The target formation is the Todilto limestone, with the hole completed 5 to 20 feet into the Entrada sandstone.

No water aquifers are expected to be encountered in the drilling. However, if water is encountered, a cement plug will be used to block the water aquifer. If the water reserves are such that they could be developed for domestic use, Todilto will contact the lessor or landowners or the Eastern Navajo Agency of the BIA regarding completion of the drill hole as a water well.

Except for the proposed major roads along the southeast side of Haystack, the only other roads proposed will be in short distances for access to drill sites. All drill sites and roadways will be constructed using a D-8K bulldozer. The average width of any roadway will be 18 feet. It is anticipated that approximately 12 acres of land will be disturbed by road construction, and approximately 11 acres will be disturbed by drill site construction.

Several homesteads are in the area, as indicated on the map. Permission is now being sought from the BIA and Brown Vandever (Lessor) to drill within 50 feet of the dwellings. High priority areas are outlined in red on Map D-14, with the possibility of closer than 250-foot drilling outlined in green. Drilling in the areas outlined in green will only be done if drilling results indicate the need to. Drilling will comprise the use of a 1000 rotary drill rig, a 2,000-gallon water truck, one driller's pick-up and one geological field vehicle.

Because of the shallow nature of the holes, it is anticipated that only air and/or foam will be used. As with our past drilling on other BIA land, the use of retention pits will not be used except possibly around dwellings and drill sites along the southeast side of Haystack. All drilling will be in compliance with the USGS uranium exploration drilling guidelines that affect us.

**TODILTO**  
**EXPLORATION AND DEVELOPMENT CORPORATION**

G. WARNOCK  
PRESIDENT

H. B. (CHICK) WARNOCK  
VICE PRESIDENT - FINANCE

March 24, 1980

Mr. Thomas Lynch  
Acting Assistant Area Director  
Bureau of Indian Affairs  
Navajo Area Office  
Window Rock, Arizona 86515

Dear Tom:

Thank you very much for your letter with the leases on the Brown Vandever property. We are returning herewith by hand the four signed copies of the lease, bond in the amount of \$5,000 per your instructions, and our Check #8850 in the amount of \$16,338.00.

Sincerely,

  
G. Warnock

GW:dt  
Enclosures

RECEIVED

MAR 24 1980

AREA BRANCH OF  
REAL PROPERTY MGMT

ALBUQUERQUE OFFICE:  
HAYSTACK MINE UNIT:  
PIEDRA TRISTE MINE UNIT:

3810 ACADEMY PARKWAY SOUTH N.E., ALBUQUERQUE, NEW MEXICO 87109, (505) 345-8391  
P. O. Box 726 GRANTS, NEW MEXICO 87020, (505) 287-7921; UNIT 755  
P. O. Box 726 GRANTS, NEW MEXICO 87020, (505) 285-6604

Make Remittance Payable To.

Bureau of Indian Affairs - Navajo Area

(Bureau or Office)

Bill No.

12497286

Date

3/24/80

Mail Payment To:

Window Rock, Arizona 86515

(Address)

PAYER:

Todilto Exploration &  
Development Corp.  
3810 Academy Parkway South N.E.  
Albuq., New Mexico 87109

Amount of Payment \$

Date	DESCRIPTION	Quantity	Unit Price		Amount
			Cost	Per	
	Ch#8850 dtd 3/24/80, Southwest Nat'l Bank Albuq., NM - payable to BIA.....				\$16,338.00
	Payment on Uranium lease, Al#077031				
	N00-C-14-20-8396				
	Bonus 75%.....				\$12,253.50
	Rental.....				\$816.90
	Min. royalty.....				\$3,267.60

3/24/80

Amount received, \$  
Thomas Lynch - Collection Officer

ACCOUNTING CLASSIFICATION (Appropriation Symbol must be shown; other classification optional)

CR: N00-01x0839-0670-193415

cc: ARPM/Minerals  
Chrono  
C/O

IIM Section, Gallup  
SD file



P A Y E E DETACH THIS STATEMENT BEFORE DEPOSITING CHECK

TODILTO EXPLORATION AND DEVELOPMENT  
CORPORATION, ALBUQUERQUE, NEW MEXICO

DATE	ACCOUNT OR INVOICE NO.	DESCRIPTION	AMOUNT	DISCOUNT OR DEDUCTION	NET AMOUNT
		Bonus 75.00 x 163.38 acres First year rent @ 5.00 Minimum Royalty @ 20.00 <i>Contract # NOO-C-14-20-8396</i> <i>Alt # 077031</i>			12,253.50 816.90 3,267.60 <u>\$16,338.00</u>

EMPLOYEE'S  
NAME

TODILTO EXPLORATION AND DEVELOPMENT  
CORPORATION, ALBUQUERQUE, NEW MEXICO

PAY PERIOD ENDING	HOURS	RATE	GROSS EARNINGS	FICA	FED WITH TAX	STATE WITH TAX	NET EARNINGS PAID
	REG. T. O.T.			DEDUCTIONS			

EMPLOYEE: THIS IS A STATEMENT OF YOUR EARNINGS AND DEDUCTIONS FOR PERIOD INDICATED. KEEP THIS FOR YOUR PERMANENT RECORD.

4-1-80

Mr can h / F. H. H. H.

Grand main 10 Jan. 78 in Jan 19,  
and into Jan. 13 in July 75.

to USGS 165 data taken in September 1965  
information to USGS for 20,000 ft.  
regions list in the 1,000 ft.

Underground main Jan. 1965  
150' - 180' depth -

Fig 9 main - 1965 5 4 15

was definite into main Jan. 1965  
of drilling program. Drilling  
program main main 1965  
main 150' - 180' depth -

1.1

Gross Value  
at 10% T.H. Val

2 x 6% Rate = 4.75%

Gross sum of 10%  
to Warrant

April 14, 1980

BC#212497288      TODILTO EXPL. & DEVELOPEMENT  
3/24/80      Allotted Uranium lease No.  
\$16,338.00      NOO-C-14-20-8396 - A1#077031

Bonus               -    \$12,253.50  
Rent                 -       816.90  
Min. royalty       -    3,267.60  
                             \$16,338.00

DR:    NOO-01x0039-0670-193420      \$16,338.00

CR:    NOO-01x0039-0611  
      IIM Acct. as below:

<u>IIM</u>	<u>Census</u>	<u>Name of allottee</u>		
V-10025	5841	Brown Vandever	ALL	\$16,338.00

\$16,338.00      \$16,338.00

/s/ Elaine Skeet  
Accts. Maint. Clerk-typing

/s/ Thomas Lynch  
Area Real Property Mgm't. Officer

XXXXXX  
12497288

Bureau of Indian Affairs - Navajo Area 3/24/80

Window Rock, Arizona 86515

Tollito Exploration &  
Development Corp.  
3810 Academy Parkway South M.H.  
Albany, New Mexico 87109

CR-8850 dtd 3/24/80, Southwest Nat'l Bank  
Albany, NM - payable to BIA.....\$16,338.00

Payment on Uranium Lease, A18077031

NMO-C-14-20-8396

Bonus 75%.....\$12,253.50  
Rental.....\$816.90  
Min. royalty.....\$3,267.60

XXXXXXXXXX \$16,338.00  
3/24/80  
Thomas Lynch - Collection Officer

3420

CR: NMO-01X0839-0670-192415

cc: ARPM/Minerals  
Chrono  
C/O

IN Section, Gallup  
SD file

April 15, 1980

BC#12497288  
3/24/80  
\$16,338.00

TO TRANSFER ERRONEOUS DEPOSIT  
from Special Deposit No.  
193419 to Special Deposit No.  
193420:

DR: NOO-01x0039-0670-193419 \$16,338.00

CR: NOO-01x0039-0670-193420 \$16,338.00

\$16,338.00 \$16,338.00

/s/ Elaine Skeet

Accts. Maint. Clerk-typing

/s/ Thomas Lynch

Area REal Property Mgm't. Officer

BILL FOR COLLECTION

Bill No. 12497302

Make Remittance Payable To: **Bureau of Indian Affairs- - Navajo Area** Date: **4/01/80**

Mail Payment To: **Window Rock, Arizona 86515**  
 (Bureau or Office)  
 (Address)

PAYER:

**Todilto Expl. & Development Corp.  
 3810 Academy ParkWay So., NE  
 Albuq., New Mexico 87109**

Amount of Payment \$ \_\_\_\_\_

Date	DESCRIPTION	Quantity	Unit Price		Amount
			Cost	Per	
	<b>Ck#8890 dtd 3/27/80, Southwest Nat'l Bank            Albuq., NM - payable to BIA.....</b>				<b>\$10.00</b>
	<b>Filing fee:</b>				
	<b>NOO-C-14-20-8396 ✓</b>				<b>\$10.00</b>

~~XXXXXXXXXXXX~~ **\$10.00**

**4/01/80**

*Thomas Lynch*  
**Thomas Lynch - Collection Officer**

Amount received, \$ \_\_\_\_\_

ACCOUNTING CLASSIFICATION (Appropriation Symbol must be shown; other classification optional)

**CR: NOO-~~2~~x02-2499-3400-9001**

**cc: ARPM/Minerals ✓  
 Chrono  
 C/O**

P A Y E E DETACH THIS STATEMENT BEFORE DEPOSITING CHECK

TODILTO EXPLORATION AND DEVELOPMENT  
CORPORATION, ALBUQUERQUE, NEW MEXICO

DATE	ACCOUNT OR INVOICE NO.	DESCRIPTION	AMOUNT	DISCOUNT OR DEDUCTION	NET AMOUNT
3/24/80	12497288	Filing fee on Uranium lease, A1#077031  8396			\$10.00

EMPLOYEE'S NAME		TODILTO EXPLORATION AND DEVELOPMENT CORPORATION, ALBUQUERQUE, NEW MEXICO								NET EARNINGS PAID
PAY PERIOD ENDING	HOURS	RATE	GROSS EARNINGS	F.I.C.A.	FED. WITH. TAX	STATE WITH. TAX				
REG. T. O.T.				DEDUCTIONS						

EMPLOYEE: THIS IS A STATEMENT OF YOUR EARNINGS AND DEDUCTIONS FOR PERIOD INDICATED. KEEP THIS FOR YOUR PERMANENT RECORD.



# JOURNAL VOUCHER

J. V. No. \_\_\_\_\_

Date April 15, 1980

REFERENCE	EXPLANATION	DEBIT	CREDIT
BC#12497288 3/24/80 \$16,338.00	TO TRANSFER ERRONEOUS DEPOSIT from Special Deposit No. 193419 to Special Deposit No. 193420:		
	DR: NOO-01x0039-0670-193419	\$16,338.00	
	CR: NOO-01x0039-0670-193420		\$16,338.00
<div>POSTED APR 17 1980 INDIVIDUAL INDIAN MONKES</div> <p>Received APR 16 1980 NAVAJO AREA OFFICE</p>		TOTAL,	
		\$16,338.00	\$16,338.00

Prepared by /s/ Elaine Skeet  
(Signature)

Approved by /s/ Thomas Lynch  
(Signature)

Accts. Maint. Clerk-typing  
(Title)

Area REal Property Mgm't. Officer  
(Title)

# JOURNAL VOUCHER

J. V. No. 20 102

Date April 14, 1980

REFERENCE	EXPLANATION	DEBIT	CREDIT
BC#12497288 3/24/80 \$16,338.00	TODILTO EXPL. & DEVELOPEMENT Allotted Uranium lease No. NOO-C-14-20-8396 - A1#077031  Bonus - \$12,253.50 Rent - 816.90 Min. royalty - 3,267.60 \$16,338.00  DR: NOO-01x0039-0670-193420  CR: NOO-01x0039-0611 IIM Acct. as below:  <u>IIM</u> <u>Census</u> <u>Name of allottee</u>  V-10025      6841      Brown Vandever  <div>POSTED APR 17 1980 INDIVIDUAL INDIAN MONIES</div>  TOTAL,	\$16,338.00	\$16,338.00
		\$16,338.00	\$16,338.00

Prepared by /s/ Elaine Skeet  
(Signature)  
Accts. Maint. Clerk-typing  
(Title)

Approved by /s/ Thomas Lynch  
(Signature)  
Area Real Property Mgm't. Officer  
(Title)

P. O. Box 26124  
Albuquerque, New Mexico 87125

April 22, 1980

Memorandum

To: Area Director, Navajo Area Office, BIA

From: Mining Engineer, Albuquerque District, SCR

Subject: Proposed Original Exploration Plan on Navajo Allotted Mining Lease NOO-C-14-20-8369

Two copies of the subject exploration plan is enclosed for your distribution and review. We would appreciate receiving your comments and recommendations on the protection of the non-mineral resources and reclamation of the land surface involved, as soon as possible.

These comments and recommendations will be incorporated into our environmental analysis of the proposal, and a copy of that analysis will be sent to you upon completion. If you have any questions about the proposal, please contact this office.

(ORIG. SGD.) DAVID R. SITZLER  
David R. Sitzler

P20 1261519

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—  
NOT FOR INTERNATIONAL MAIL  
(See Reverse)

SENT TO		
Area Dir, BIA, Navajo Area		
STREET AND NO.		
P.O., STATE AND ZIP CODE		
Window Rock, AZ 86515		
POSTAGE	\$	
CONSULT POSTMASTER FOR FEES OPTIONAL SERVICES RETURN RECEIPT SERVICE	CERTIFIED FEE	c
	SPECIAL DELIVERY	c
	RESTRICTED DELIVERY	c
	SHOW TO WHOM AND DATE DELIVERED	c
	SHOW TO WHOM, DATE, AND ADDRESS OF DELIVERY	c
	SHOW TO WHOM AND DATE DELIVERED WITH RESTRICTED DELIVERY	c
TOTAL POSTAGE AND FEES		\$
POSTMARK OR DATE		
8-22-80		

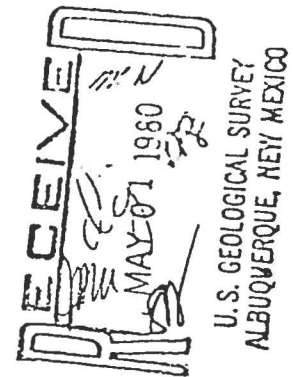
4-22-80

URN RECEIPT REQUESTED



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
AREA OFFICE, ARIZONA - NEW MEXICO  
2953 W. INDIAN SCHOOL ROAD  
PHOENIX, ARIZONA 85017

April 25, 1980



MEMORANDUM

TO : Mining Engineer, Albuquerque District, SCR

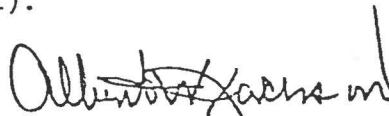
FROM : Area Manager, Area 2, Phoenix, Arizona

SUBJECT: Informal Endangered Species Consultation for Todilto Exploration and Development Corporation's Proposed Exploration and Mining Plans

This is in reply to your February 20, 1980, memorandum which requested information about species which are listed or proposed to be listed as threatened or endangered as provided by the Endangered Species Act. Your area of interest is the SW/4, Section 18, T. 13 N., R. 10 W., N.M.P.M., McKinley County, New Mexico.

As provided by Section 7 (c) of the Endangered Species Act Amendments of 1978, the Fish and Wildlife Service is required to furnish a list of those species, both proposed and listed that may be affected by Federal construction activities.

Our data indicates no listed or proposed species inhabit the area of interest. If we may be of further assistance, do not hesitate to call upon us (602-241-2487; FTS 474-3972).

  
Albert W. Jackson

cc: Regional Office (SE)  
Field Supervisor, Albuquerque Field Office (ES)

ENDANGERED SPECIES CONSULTATION

APPENDIX D

**Rights Protection/Environmental Quality**

**April 28, 1980**

**Area Real Property Management**

**Proposed Interim Mining Plan & Original Exploration Plan on Navajo  
Allotted Mining Lease No. N00-C-14-20-8369**

Enclosed are copies of subject mining plans. Please review the plan and provide us with any comments you have along with your concurrence to the plan. Your comments will be incorporated into the environmental analysis being prepared on this proposal. Please provide comments and return the mining plans by May 6, 1980.

**Enclosures**

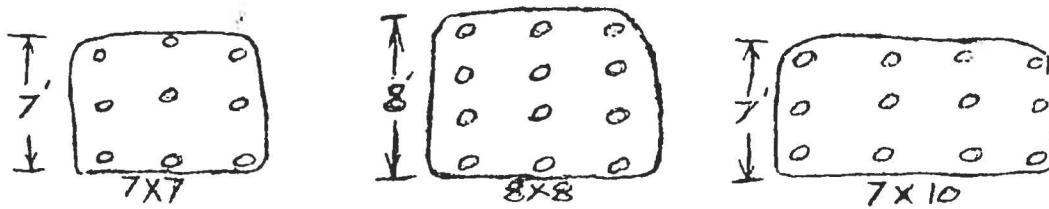
*S. Lynch*

cc: ~~Suspense file~~  
Minerals Chrono  
Chrono  
M&F  
300

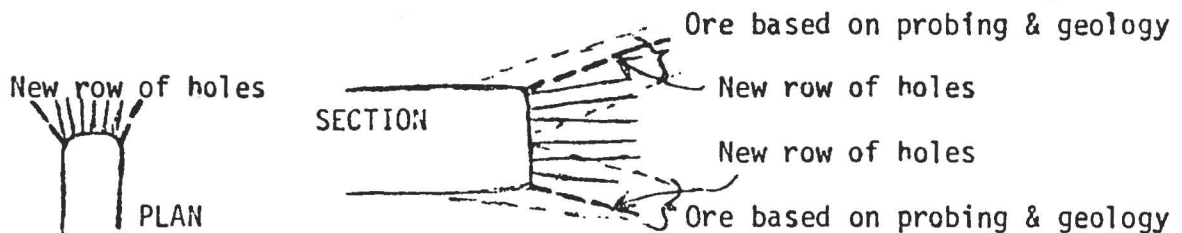
330:FEESPINOZA:jb:04/28/80a

## GRADE CONTROL - BLAST - PROBING PROCEDURE

1. Any face 7' high or higher must be drilled in a 9-hole or 12-hole pattern as below in diagram and probed prior to locating burn cuts to determine if it should be split shot or not.



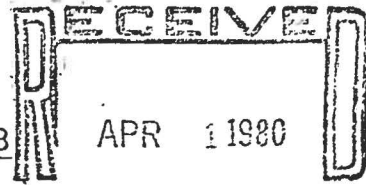
2. Any face less than 7' high will not be split and can be drilled normally before probing, then probed and classified as an ore or waste advance. Probe before setup is broken down in case more holes are needed. Generally, it is preferable to start probing one side as soon as the miner moves over to drill the other side of the face.
3. We will not try to split any ore less than 1.5' thick if solid and 2.5' thick if fractured. Take the complete round as low grade.
4. The undercut must be minimum 4.5' clearance - or the round cannot be split shot.
5. Always load top holes in split and back holes in full round as light as possible.
6. Grade control man is responsible to spread round wider or higher or lower based on probing in all rounds. If ore is continuous across face in stope development, (6x7 - 6x10) have miner drill one more row on both sides flared out as in diagram. If ore is narrowing in 6x10 don't shoot rib holes.



Drift and entry rounds go to designated width only, but must go up and down with ore as above.

7. Stope walls will be probed prior to slashing. All probe holes will be drilled at slash angle so they can be shot if they run. Keep stope retreat wall advancing equally when a waste pillar is encountered. Same grade control - split shooting procedures apply in stope as in advances.
8. If the miner chooses to use a "V" cut he can drill the full face regardless of size because it can still be split after the "V" is established.

EXPLORATION PLAN  
Southwest Quarter - Section 18



Submitted herein is the exploration plan for Navajo-allotted land located in the southwest quarter of Section 18, Township 13 North, Range 10 West, McKinley County. The exploration plan as submitted outlines a minimum of 160 to 165 exploration drill holes, with a possibility of 1,000 fill-in holes on 25-foot centers.

We are requesting permission to commence the 1200 haulage drift advance across the property line immediately. Advance will be at least 300 to 500 feet east and will include north and south cross cuts. This work will commence before any archaeological studies or final approval of the surface drilling programs are made, since there will be no surface impact on the area (see Map D-14).

Todilto, if requested, will contract with an archaeologist to inspect the southwest quarter of Section 18 in order to determine the presence of surface archaeological manifestations. Road and drill site locations may be altered somewhat, based on an archaeological clearance. The purpose of drilling is to extend and delineate uranium reserves east of the Haystack underground operation, as indicated on the map. For this, Todilto is now seeking written approval from the Bureau of Indian Affairs and Brown Vandever for permission to drill within 50 feet of any dwelling. Once approvals are signed, they will be forwarded to your office.

Todilto is also proposing two major roadways on the southeast side of Haystack. These roads will begin from an already established road on the east side, and follow the 7400 and 7550 foot contours. Both roads will end at the west section line of Section 18, or when road construction becomes impossible (see Map D-14).

Mineral rights to the southwest quarter of Section 18 belong to Brown Vandever, who was allotted the land from the BIA. If the southwest quarter of Section 18 goes into production, Mr. Vandever will receive 100% of the royalty based on the royalty rate given to us in the approved lease.

Todilto also has mineral rights to BLM land in the northwest quarter of Section 18, which are staked as the Tess 1 through 10 claims. Additionally, mineral rights to the southeast quarter, the south half of the north half of Section 13, are owned by the Department of Energy and leased to Todilto. The surface rights are reserved for the use of the Navajo Nation by the Public Land Order, #2178, dated August 26, 1960. Todilto additionally holds BIA Lease #N00-C-14-5681 on the north half of the north half of Sections 11 and 13. Todilto holds mineral rights to the north half of the northwest quarter of Section 19, T13N, R10W, and the southwest quarter of Section 13, T13N, R11W, by lease from the Santa Fe Pacific Railroad Company.

Physiographically, the area is in the Colorado Plateau province. The most prominent feature in the area is Haystack Mountain, which has a maximum elevation



of 7,833 feet and is a flat-topped, elongated mesa. The area of drilling varies in elevation from 6,900 to 7,600 feet.

The drilling area cover consists of weathered and unconsolidated Westwater and Bluff sandstone, with Dakota talus on the southeast side of Haystack to a blow-sand cover on the flat. Vegetation consists of various grasses, juniper, pinon and minor cactus.

The climate is semi-arid, with an average annual precipitation of about 12 inches, occurring mostly as rain in July and August.

Wildlife consists of rabbits, lizards, and a variety of birds with an occasional coyote or bobcat. No permanent damage is expected to result to the inhabitants or their natural environment.

The land is used locally by the owners for grazing. Portions of the area have been fenced off for livestock control.

Figure 3 and Table 2 are general stratigraphic cross-sections for the vicinity of Haystack Butte. Structurally, beds generally dip from 30° to 50° northeast. Minor east-west and northeasterly-trending normal faults displace beds from 1 to 85 feet locally. No geologic hazards, such as toxic or explosive gases, are known to exist, and no unusual conditions are expected. All drill holes will be collared in the Summerville formations except on the southeast side of Haystack, where the holes will collar in the middle or lower Westwater unit. The target formation is the Todilto limestone, with the hole completed 5 to 20 feet into the Entrada sandstone.

No water aquifers are expected to be encountered in the drilling. However, if water is encountered, a cement plug will be used to block the water aquifer. If the water reserves are such that they could be developed for domestic use, Todilto will contact the lessor or landowners or the Eastern Navajo Agency of the BIA regarding completion of the drill hole as a water well.

Except for the proposed major roads along the southeast side of Haystack, the only other roads proposed will be in short distances for access to drill sites. All drill sites and roadways will be constructed using a D-8K bulldozer. The average width of any roadway will be 18 feet. It is anticipated that approximately 12 acres of land will be disturbed by road construction, and approximately 11 acres will be disturbed by drill site construction.

Several homesteads are in the area, as indicated on the map. Permission is now being sought from the BIA and Brown Vandever (Lessor) to drill within 50 feet of the dwellings. High priority areas are outlined in red on Map D-14, with the possibility of closer than 250-foot drilling outlined in green. Drilling in the areas outlined in green will only be done if drilling results indicate the need to. Drilling will comprise the use of a 1000 rotary drill rig, a 2,000-gallon water truck, one driller's pick-up and one geological field vehicle.

Because of the shallow nature of the holes, it is anticipated that only air and/or foam will be used. As with our past drilling on other BIA land, the use of retention pits will not be used except possibly around dwellings and drill sites along the southeast side of Haystack. All drilling will be in compliance with the USGS uranium exploration drilling guidelines that affect us.

Once drilling is completed, each drill site will be leveled, contoured and reseeded with grass according to recommendations made by the Lessor and the Area Director. All holes will be backfilled, with the last five feet as a cement plug, and marked with a 2-inch by 2-inch by 3-foot wood stake.

All trash and debris shall be transported from the lease area and disposed of in the covered land fill site at Haystack Mine.

EXPLORATION PLAN

- I LESSOR: Brown Vandever  
ADDRESS: P.O. Box 262, Prewitt, New Mexico 87045
- II LESSEE: Todilto Exploration and Development Corporation  
ADDRESS: 3810 Academy Parkway South, N.E.  
Albuquerque, New Mexico 87109
- PHONE: (505) 345-8391
- III CONTRACT DRILLER:  
ADDRESS:  
PHONE:
- IV Exploration Area  
Legal Description: Southwest quarter, Section 18, T13N, R10W  
McKinley County  
CONTRACT NUMBER:  
ANNIVERSARY DATE: March 24, 1980

V STATEMENT OF INTENTIONS:

<u>OBJECTIVES:</u>	<u>MINIMUM # OF HOLES</u>	<u>MINIMUM TOTAL FOOTAGE</u>	<u>APPROX. TIME FACTOR (DAYS)</u>
Exploration Drilling with the possibility of 1000 maximum fill-in holes.	165	20,300	25
Drive the 1200 (immediately) Haulage Drift East with North and South Cross-cuts.		300-500 feet east	60
Reclamation Contouring, leveling, reseeding			30
Backfill Holes			Depending on total number of holes; 10 holes/day

- VI Anticipated area disturbed: Approximately 23 acres.  
Sites: 0.1 acres per site: Approximately 11 acres.  
Road construction  
(for access) Approximately 12 acres.
- VII Required Maps: 103-007-015-18 D-14 Scale 1"=100 feet

Respectfully submitted,  
February 29, 1980

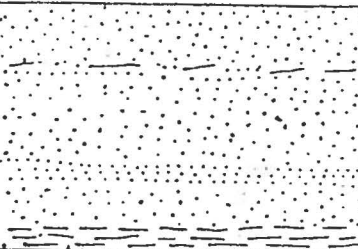
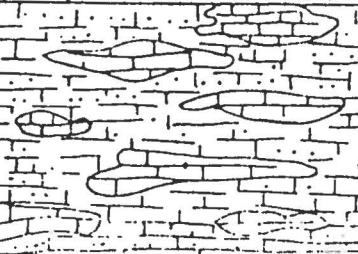
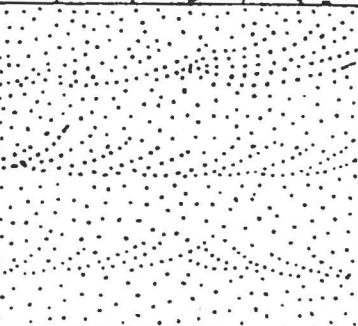


Tim Pearson

System	Series	Group	Formation	Rock Type	Thickness (Ft.)
Quaternary	Recent and Pleistocene			Sand, gravel, loess	0-100
				Cinders, basalt	0-200
Cretaceous	Upper	Mesaverde	UNCONFORMITY Gallup sandstone	Sandstone	60-120
			Mancos shale	Shale	850-900
			Dakota sandstone	Sandstone, shale, coal	50-100
	Lower				
Triassic	Upper	Morrison (m.)	UNCONFORMITY Brushy Basin mbr.	Mudstone, siltstone, ss.	45-100
			Westwater Canyon mbr.	Sandstone	125-185
			Recapture mbr.	Siltstone, mudstone	125-245
		San Rafael	Bluff sandstone	Sandstone	100-300
			Summerville formation	Sandstone, siltstone, shale	150-200
			Todilto limestone	Limestone	25-35
			Entrada sandstone	Sandstone	135-150
			Carmel formation	Sandstone, siltstone	35-50
		Glen Canyon	UNCONFORMITY Wingate sandstone	Sandstone	110-120
			Chinle formation	Mudstone, siltstone, sandstone, conglomerate	1200-1600
Permian	Upper		UNCONFORMITY Moenkopi formation	Siltstone, mudstone	25-50
			UNCONFORMITY San Andres limestone	Limestone, sandstone	95-130
	Leonard		Glorieta sandstone	Sandstone	200-375
			Yeso formation	Siltstone, sandstone, mudstone, limestone	850-1000
	Wolfcamp		Abo formation	Siltstone, sandstone, conglomerate	600-650
Pennsylvanian(?)				Conglomerate, arkose, sandstone, shale, limestone	0-150
Precambrian			UNCONFORMITY	Granite, gneiss, metahyalite, schist	

After W. L. Chenoweth

Table 2. Stratigraphic chart, Haystack Butte and vicinity, northeast flank of the Zuni Uplift, New Mexico

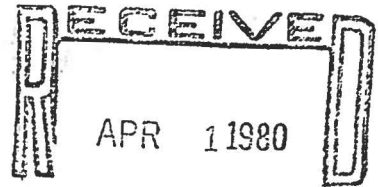
Age	Formation	Unit	Lithology	Columnar Section
JURASSIC	Summer-ville formation		Reddish-brown sandstone, massive to thin bedded, fine, grained, well sorted, fluvatile.	
			Pale grayish-green mudstone	
	Todilto limestone	intertonguing zone	Light gray siltstone and sandstone with limestone lenticles; sandstone is fine-grained, massive, and calcareous; limestone is light and medium gray, massive, and very coarse-grained.	
		"crinkly" (recrystallized) zone	Mottled medium and dark gray limestone; thin crinkled bedding highly recrystallized coarse-grained, local silty lenses.	
		platy zone	Thick-bedded gray limestone  Light to medium gray, alternating thick and thin bedded, very fine-grained dense limestone.  Sandy limestone.	
	Entrada sandstone		Reddish-brown sandstone, fine-to medium-grained, well sorted; uppermost five feet bleached white; eolian cross bedding.	

7 feet  
0

April 1956 RME - 120

Figure 3. Stratigraphy of the Todilto limestone and portions of adjacent formations in the vicinity of Haystack Butte, McKinley County, New Mexico

ADDENDUM TO EXPLORATION PLAN  
SW $\frac{1}{4}$ , Section 18, T13N, R10W



1. NATIONAL PARK SERVICE ARCHEOLOGICAL CLEARANCE

- 1.1 Todilto Exploration and Development Corporation has contacted Mr. Joe Winters of the Archeological Department of the University of New Mexico concerning an archeological survey of Southwest 18. The survey, once approvals are made, could begin within the next two weeks.
- 1.2 Once the clearances have been approved, Todilto will immediately forward them to your Department. We fully understand that no surface disturbance activity will start until the clearance is issued.

2. PLUGGING OF BOREHOLES WHEN GROUNDWATER IS ENCOUNTERED

- 2.1 Todilto has extensively drilled the Haystack area and has never encountered any groundwater. However, in the event we do, Todilto will follow the normal procedures as outlined on Page 2, Paragraph 7, and will follow any other requirements stipulated by the New Mexico State Engineer.

3. ROADWAYS

- 3.1 Todilto will have written approval from Brown Vandever (Lessor) concerning the construction of proposed roadways on the southeast side of Haystack. Todilto hereby amends the average roadway widths from 18 feet (Page 2, Paragraph 8), to 16 feet. Also, Todilto will gain access to drill sites from lands already occupied by Todilto whenever possible.
- 3.2 Road maintenance will primarily be done by our D-8K Cat and will include, when needed, blading, ditching and possible improvements to existing roads. Erosion controls will be used where needed. Erosional control will be accomplished with the use of waterbars, retention pits, if necessary, and possible reseeding.

4. 1200 HAULAGEWAY EXTENSION

- 4.1 Permission is requested to immediately drive Todilto's existing 1200 North haulageway due east into the subject lease, per our submitted Interim Mining Plan of same date.

5. SURFACE AND GROUNDWATER

- 5.1 No surface water, either as springs, ponds or water tanks, are known to exist in or around Southwest 18, nor has there been any groundwater encountered in either the drilling or in the Haystack underground operations. It is thus firmly believed that no aquifers exist in any of the formations that will be drilled or mined.

- 5.2 The only water well known to exist in the area is located in the north-east quarter of Section 19. It is stratigraphically collared in the Entrada sandstone well below the mine's stratigraphic horizon, and will not be affected by either the drilling or any mining operations.

6. ENDANGERED SPECIES

- 6.1 As listed on Page 2, Paragraph 4, of the original exploration plan, these are the only known inhabitants, and no endangered species are known to inhabit the proposed exploration area.

NAVAJO AREA OFFICE  
WINDOW ROCK, ARIZONA 86515

SURNAME  
*[Signature]*

APR 15 1980

ARPM/Minerals

Todilto Exploration and  
Development, Corporation  
3810 Academy Parkway, South N.E.  
Albuquerque, New Mexico 87109

Gentlemen:

Enclosed is your copy of Uranium Lease Contract No. N00-C-14-20-8396,  
Allotment No. 077031, located in the SW $\frac{1}{4}$  of Section 18, Township 13  
North, Range 10 West, McKinley County, New Mexico, approved April 9,  
1980.

Sincerely yours,

*Ted S. Koenig*

~~Assistant~~

Area Director

Enclosure

cc: U. S. Geological Survey, Albuquerque, NM w/one copy of lease  
Superintendent, Eastern Navajo Agency w/one copy of lease

bcc: TRD/1105-13a(2) N00-C-14-20-8396  
Minerals Chrono  
Chrono  
300  
M&F

330:SSHAW:jb:04/11/80p



*gag*

NAVAJO AREA OFFICE  
WINDOW ROCK, ARIZONA 86515

ARPM/Minerals

APR 30 1980

Memorandum

To: Rights Protection/Environment Quality  
Attention: Mr. Analla  
ACTING

From: Area Real Property Management Officer

Subject: Proposed Interim Mining Plan and Original Exploration  
Plan on Navajo Allotted Mining Lease No. N00-C-14-20-8369

Enclosed are subject proposed plans submitted by U. S. Geological  
Survey letters dated April 22, 1980, for our review and comment.

Please review both plans and provide us with any comments you may  
have along with your concurrence to the plan, as soon as possible  
and return all documents and maps for our files.

*151 Lloyd E. Espinoza*

Enclosures

bcc: TRR/1105-13a(2) N00-C-14-20-8369 SUSPENSE FILE May 15, 1980  
Minerals Chrono  
Chrono  
M&F  
300

330:FEESPINOZA:jb:04/30/80p

WARNICK  
FILE

Window Rock, Arizona 86515

May 3, 1979

Memorandum

TO: Area Director  
ATTN: Asst. Area Director (Resources)

FROM: Field Solicitor

SUBJECT: Mineral Leasing of Allotments

Because of recent charges (Peshlakai v. Schlesinger, Petition of McRae) that the BIA in handling allotment mineral leasing has not always acted in the best interests of allottees; and because of the exacting standard of conduct placed on us by our trust responsibility to allotment owners, this office recommends that all future leasing transactions by the Bureau place a greater emphasis on notice to affected allottees when negotiations begin between the BIA and energy companies. Such notification should be given whenever a company shows interest in leasing a particular allotment. The problem in the past has been that, although the lease is agreed to and signed by individual allottees, the terms are usually reached in negotiations between the Bureau and the potential lessee, with little if any input from the potential lessor. Although this general approach will necessarily continue because of the need for legal expertise in lease negotiations, allottees should be involved early in the process in order to incorporate their suggestions in draft leases and to give them an opportunity to retain private legal counsel if they so desire. Allottees should be apprised by the Bureau of the particular leasing situation presented to them, and the potential problems which are involved. Because of the increasing complexity of leases and the possibility that knowledgeable counsel could provide those lessors in need of more complete planning, including income tax and estate plans, with the required expertise, it is advisable to have early participation by allottees. Such notice might also help to avoid charges of overreach by the energy companies of non-English speaking allottees.

In order to facilitate this plan, it is suggested that letters be sent to each affected allottee whenever an

energy company expresses interest in his/her allotment. Thereafter, the Bureau could either hold a meeting to explain the situation and answer questions, or apprise the allottees of where they can obtain information and advice regarding proposed leases. It is hoped that, in conjunction with this plan, the Bureau (through the Solicitor's Office) could develop some expertise in advanced lease agreements that would provide the most benefits and possibilities for long-lasting economic development from all leases. This might involve planning joint ventures between allottees and energy companies, or the formation by affected allottees of business ventures to promote economic development with royalty payments. Such programs by the Bureau on behalf of allottees would go far in fulfilling our trust responsibility to allotment holders.

*Claudeen Bates Arthur*

Claudeen Bates Arthur  
Field Solicitor

CBA:jb

UNITED STATES GOVERNMENT

# Memorandum

ADD
MINERALS
ORG
11-5-80
R/W
HA. SEC.

TO : Area Real Property Management Officer

DATE: MAY 7 1980

FROM : <sup>ACTING</sup> Environmental Quality Services Officer

SUBJECT: Proposed Interim Mining Plan and Original Exploration Plan - Navajo  
Allotted Mining Lease Number N00 C 14 20 8360: 8396

The subject documents have been reviewed and we respectfully submit the following comments for your information.

## Exploration Plan

Paragraph 2 - What is proposed for ventilation in the 1200 Havlage Drift and its crosscuts since no surface disturbances are proposed?

Paragraph 3 - Archeological clearance shall be required for all of the SW $\frac{1}{4}$  of Section 18, T13N, R10W prior to the commencement of the described exploration operation. The Navajo Area Archeologist in the Environmental Quality Office at Window Rock shall be kept advised of all archeological surveys, reports and any necessary mitigating actions during the duration of this project.

Paragraph 17 - Recontouring and revegetation shall include all access roads and other surface disturbances resulting from the exploration operation.

## Addendum to Exploration Plan

### 6. Endangered Species

Who determined that no endangered species (Flora or Fauna) are known to inhabit the area? A list of Flora and Fauna in the area should be requested from U.S. Fish and Wildlife Service in Albuquerque. If there is any indication of endangered species, then a Section 7 Consultation must be considered.

## Interim Mining Plan

2.7 Archeological studies should be coordinated with the NAO Archeologist, Environmental Quality Office, Window Rock.

6.3 See paragraph 6 comment under Addendum to Exploration Plan.

RECEIVED

MAY 7 1980

AREA BRANCH OF  
REAL PRO



5010-108

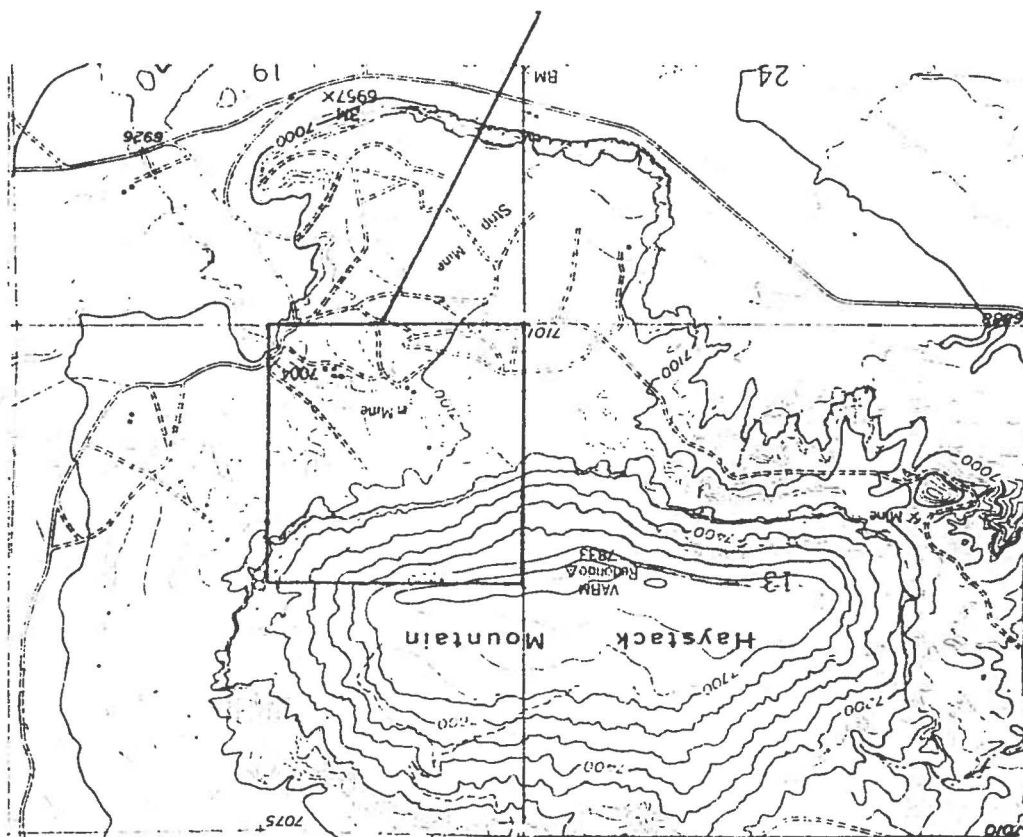
Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

12. Health and Safety Measures

This section needs to be expanded and the following actions discussed in detail.

Ground Control  
Safety and Health Training and Inspections  
Hazard Training  
Provisions for Ventilation and Dust Control  
Fire Control  
Havlage Safety  
Emergency Escapeways and Procedures

*N. Barry Holt*



Location of SW 1/4 Section 18 T13N, R10W

Figure 1.

## INTERIM MINING PLAN

SW $\frac{1}{4}$ , Section 18, T13N, R10W

### 1. SUMMARY

- 1.1 Todilto proposes to immediately drive its existing 1200 North haulway due east into the Vandever lease. This request is based on the knowledge that the boundary area at the 1200 North haulageway does contain ore immediately at the boundary. Per Map #103-007-015-18-D-14, the proposed drive of the 1200 North haulageway due east would be for a minimum of 300 feet, possibly as much as 500 feet, with turnoffs of the 1200 both north and south following our normal underground development pattern.
- 1.2 This is pure exploration development in the context that apart from the ore face existing at the boundary, we do not know how much ore is on the east side of the boundary. However, per Map D-14, our projected eastern ore zone trend makes the proposed underground development realistic. Because of these factors, exact times or estimated production information cannot be determined at present.

### 2. GENERAL DESCRIPTION OF EXISTING AREA

- 2.1 Physiographically the proposed mining area is in the Colorado Plateau province. The most prominent feature is Haystack Mountain, which has a maximum elevation of 7,833 feet and is a flat-topped elongated mesa. Elevation in the proposed mining area varies from 6,900 to 7,700 feet.
- 2.2 Geology locally consists of Cretaceous Dakota sandstone, Jurassic Morrison, which includes the Brushy Basin, Westwater Canyon and the Recapture members, the Bluff sandstone and portions of the Summer-ville formation, all which are restricted to exposures along Haystack Butte. Exposures of Jurassic Todilto limestone and Entrada sandstone are found along a bluff below a bench just south of Section 18. Structurally, beds generally dip from 30° to 50° northeast. Minor east-west and northeasterly-trending normal faults displace beds from 1 to 85 feet.
- 2.3 No surface water exists in or around the southwest quarter of Section 18. Several small arroyos cut the area with general drainage to the southeast.
- 2.4 Extensive drilling around the southwest quarter of Section 18 and underground mining in adjacent Section 13 to the west has encountered no ground water. If any ground water aquifers do exist, they would be stratigraphically far below any of the mine workings and would not be affected by this operation.
- 2.5 The southwest quarter of Section 18 lies in T13N, R10W, of McKinley County. Access to the area can be reached by three major dirt roads from either Highway 53 or old U.S. 66 (see Figure 1, following page).

- 2.6 Population centers near the southwest quarter of Section 18 are Prewitt, approximately six miles southwest, and Grants, approximately 25 miles southeast. Population in the immediate area is approximately 20 people with six of these people working for Todilto's Haystack Mine. These people will not be affected by the proposed underground operation.
- 2.7 An archeological study is now being developed for Southwest 18, and once it is completed, it will be submitted to your office. The only other archeological manifestations known in the area are found in the N $\frac{1}{2}$  N $\frac{1}{2}$  of Section 13, and were cataloged in UNM proposal #101-103V. These will not be affected by the proposed interim mining plan.
- 2.8 The only other mines in the area consist of both an intermitant Haystack open-pit operation on Section 19 and the Haystack underground operation on Section 13. Both operations are owned and operated by Todilto Exploration and Development Corporation.

### 3. LEGAL DESCRIPTIONS OF LANDS IN AND AROUND SUBJECT LEASE

- 3.1 Mineral rights to the southwest quarter of Section 18 belong to Brown Vandever, who was allotted the land from the Bureau of Indian Affairs. If the southwest quarter of Section 18 goes into production, Mr. Vandever will receive 100% of the royalty based on the royalty rate given to us in the approved lease.
- 3.2 Todilto also has mineral rights to BLM land in the northwest quarter of Section 18, which are staked as the Tess 1 through 10 claims. Additionally, mineral rights to the southeast quarter, the south half of the north half of Section 13, are owned by the Department of Energy and are leased to Todilto. The surface rights are reserved for the use of the Navajo Nation by the Public Land Order, #2178, dated August 26, 1960. Todilto additionally holds BIA Lease #N00-C-14-5681 on the north half of the north half of Section 13. Todilto holds mineral rights to the north half of the northwest quarter of Section 19, T13N, R10W, and the southwest quarter of Section 13, T13N, R11W, by lease from the Santa Fe Pacific Railroad Company.

### 4. SURFACE COVER

- 4.1 Surface cover consists of blow sand on the bench area with talus of Dakota sandstone blocks and other unconsolidated formational material along the southeast side of Haystack.

### 5. CLIMATOLOGY

- 5.1 The climate is semi-arid, with an average annual precipitation of about 12 inches, occuring mostly as rain in July and August. Snowfall is light and varies between a few inches to one foot with intermittent melting to bare ground most winters.



## 6. FLORA AND FAUNA

- 6.1 Vegetation is extremely sparse and consists of an upper Sonoran grassland community with a scattered population of Pinon and Juniper.
- 6.2 Wildlife consists of rabbits, lizards, a variety of birds, and an occasional coyote.
- 6.3 No known endangered species of flora and fauna inhabit the Vandever lease.

## 7. DEVELOPMENT PHASES

- 7.1 The original discovery of economic uranium in the Grants district was made on Section 19, immediately south of the Vandever lease. This deposit was developed and mined by the Haystack Mountain Development Company in the early 1950's. Subsequent to that, several different local lessors held and produced from the area by following mineralized trends to the northwest.
- 7.2 The Vandever lease was mined sporadically from 1952 to August, 1966. The extent of development included two decline portals and one trench (see Map D-14). The original mining was done by the Federal Uranium Company, and was later mined by Cibola Mining till the final abandonment in August of 1966. No further work has been done on the property since then.
- 7.3 Todilto has mined the area immediately west of the west boundary of the lease since 1975. This mine commenced as an open pit producer, followed by two separate underground production areas. Map D-14 shows the "Haystack East Side Underground", located at 300 North and 00 East (the Vandever lease boundary). The East Side Underground mined area access portal has subsequently been buried during refilling of the open pit, and is no longer accessible.
- 7.4 Map #103-007-015-M-15 shows the extensive "West Portal" underground development. This area of the Haystack Mine commenced in November 1975 and has sustained the Haystack production ever since. Three separate mineralized zones are recognized at Haystack. Referring to Map M-15, they are the Main Zone Underground-West Pit trend, the Manto Zone-Main Pit trend, and the East Zone trend.

## 8. NATURE AND EXTENT OF ORE DEPOSITS

- 8.1 Generally the ore deposits currently being mined are "Manto"-type deposits. Mineralization is usually confined to the top portion of the Todilto limestone and rarely exceeds 1 to 3 feet in thickness. Mineralization is primary uraninite with some secondary tyuyamunite.
- 8.2 The Haystack deposits, which are actually several small-to-medium size orebodies, have an apparently 10° North to 20° West trend. These trends are depicted on Maps D-14 and M-15. Because we have yet

to drill the subject lease, accurate evaluations of any orebodies cannot be made. However, based on old mining information from the Vandever lease, the mined orebodies appear very similar to the ones currently being mined by Todilto on Section 13.

- 8.3 No geological hazards, such as toxic or explosive gases, are known to exist, nor are any unusual conditions expected.

## 9. PROPOSED INTERIM MINING PLAN

- 9.1 Exploration and development drilling is planned and can be found in the exploration plan. No underground longholing will be done.
- 9.2 The proposed mining methods will be to drive the 1200 North haulage-way east across the boundary a minimum of 300 feet, possibly as much as 500 feet, with both north and south turn-offs from the 1200 North following our usual underground development pattern. Since the operation will be underground, no surface disturbance will occur.
- 9.3 Mining methods at Haystack and the extension onto the lease, if approved, is load/haul/dump, rubber-tired equipment, using two-yard Wagner loaders and ten-ton Elmac underground trucks. The 1200 main haulageway is run as a 9' X 11' working to allow adequate ventilation and equipment space. The eastern extension onto the Vandever lease would be ventilated from the vent hole indicated on Map M-15 at approximately 1200 North-200 West. This is a down draft forced vent hole with a 40 HP electric fan at the bottom, and air would be pushed east into the extension through vent bags, exhausting back to the west out the 1200 portal, unrestricted. Map D-14 shows our standard exploration/development outline. Referring to M-15, 100-foot drifts east-west are followed by 60-foot centerline entries north-south. These are 8' X 8' workings. In those areas encountered by ore, the 60-foot entries and resulting pillars between them are then split on 33-1/2-foot centers, with 7' X 10' workings, resulting in fully-developed pillars 60' X 20' in size. Of course, once an area is completely developed, we retreat out of that zone, pulling the pillars as we back out.
- 9.4 Since the ore is generally a flat, tabular body, both exploration underground and mining generally require split shooting. In this process in the 8' X 8' entries as an example, we commonly shoot the waste out from underneath the ore, muck this out clean and then drop the ore by shooting the three back holes which were left unblasted during the waste shot. The ore is then mucked out individually, put on the ore stockpile by grade, and the cycle repeated.
- 9.5 Depth to surface in the proposed exploration area will be approximately 150 to 180 feet, getting much deeper to the north and slightly more shallow to the south. Referring to Map M-15, the Haystack side of the Todilto bench area is extensively mined and has never caved to the surface, even where it is relatively shallow. The area at 900 North-400 West is stoped out and has caved internally in isolated stopes. The typical stope back release that we have experienced is the caving of a red shale unit in the previous back. This caving

9. All Rock bolt holes must be probed. If as much as 1 foot of high grade (+ 0.30) or 2 feet of medium grade (+0.15) is hanging on the back, it must be salvaged as clean as possible by blocking the rear (waste) portion of the holes.
10. The grade control engineers must witness the loading of All split shots or short rounds (taking a few feet of back from bolt holes) to be sure the miner is loading the round correctly.
11. Remember, the miner is paid extra for holes not blasted so don't be tempted to blast marginal holes that shouldn't be. However, the practical integrity of the round must be maintained, ie: it must pull so some holes that otherwise shouldn't be will occasionally have to be shot to pull the round. Experience and judgement are necessary in grade control and the miner knows which holes he must have to pull the round. Listen to him.
12. Overbreak is the worst enemy of grade control. Load burns heavy to make it pull but load perimeter holes as light as possible.

produces arching of the back some 10 to 20 feet, and in all cases seen, has stopped once the sandstone of the Summerville formation is reached. Several caved stopes can be seen underground by USGS personnel at any time. None, without exception, of these stopes has ever caved to the surface or has there ever been any cracking of the surface or any surface disturbance of any kind. The aforementioned 900 North-400 West stope area has only approximately 80 feet of back from the ore horizon to the surface, and caving underground of even this shallow ground has never disturbed the surface. Thus, we are completely confident no caving to the surface or cracking of any kind will result in the requested exploration area, even if it is fully mined. Of course, we do not know how much ore is under the house near the 1200 North area, but in any case, the house clearly will not be disturbed in any way.

- 9.6 All waste mucked from the development will be taken off of the lease and gobbed in the old Haystack workings where practical or otherwise dumped on the Haystack waste dump, per Map M-15.
- 9.7 The mining sequence is purely explorational development based on known ore at the boundary and the possible eastern ore zone trend. The proposed mining plan will be followed as indicated with later modifications based on results from the surface drilling program.

#### 10. U308 PROBING TECHNIQUE BY TODILTO

- 10.1 Todilto Exploration uses a three-system probing technique to assure the most accurate grade control.
- 10.2 The initial probing is done at the face during and/or after a round or slab is drilled. The purpose is to determine where the ore is in the face and what will be the most effective way to shoot the round with minimum dilution. In most cases, Todilto split shoots where necessary per the attached geologists' procedure sheet (Figure 2, following page).
- 10.3 Once the round or slab is shot, removal of the waste and/or ore begins. Each load that the loader takes out is probed three times and the values recorded by the truck driver. At the end of the loading cycle the truck driver then makes a determination as to which stock pile the load will go on. This is based on the cumulative addition of all values he has recorded.
- 10.4 Each load is then brought to the surface and dumped individually near the appropriate stockpile. If the rock is waste it is immediately dumped on the waste dump or gobbed underground. After each working shift the individual piles are then reprobed and marked as to what stockpiles they will go to.

#### 11. CUTOFF GRADES AND ORE STOCKPILES

- 11.1 Cutoff grades currently used by Todilto are: probing blast holes before breaking the ore in a split shot, 0.10% U308, and in a full face

shot, 0.08% U<sub>3</sub>O<sub>8</sub>. Broken ore cutoff is 0.04% U<sub>3</sub>O<sub>8</sub> for general mucking.

- 11.2 All ore mined is stockpiled separately in the following classifications:

"0" Pile - 0.04% to 0.07% U<sub>3</sub>O<sub>8</sub>  
"1" Pile - 0.071% to 0.10% U<sub>3</sub>O<sub>8</sub>  
"2" Pile - 0.101% and Up

- 11.3 The "0" pile is primarily used for blending with the "1" and "2" piles and most blending is done on the property. This technique is used to produce the most economic grade for shipping, which current is 0.13% to 0.14% U<sub>3</sub>O<sub>8</sub> under existing mill contracts.

- 11.4 Todilto does not process ore but only sells the crude ore to the United Nuclear-Homestake Partnership Mill. The ore must go to this specific mill because it is the only hydroxide process mill in the Grants District. The limestone-host ore must go to a non-acid process mill. We actually sell to either United Nuclear or Homestake as separate companies, who then toll the ore through the Partnership Mill.

- 11.5 Disequilibrium of the Haystack ore is not a severe problem. However the first 1,000 tons mill lot produced on the Vandever lease will be used to compare Todilto's probing results versus the mill assay.

## 12. HEALTH AND SAFETY MEASURES

- 12.1 Todilto will comply with all State and Federal mining regulations and laws.
- 12.2 Since no surface or ground water exists on the subject lease, monitoring programs will not be needed.

## 13. ABANDONMENT

- 13.1 Since the interim mining plans propose no shafts, declines, vents or other structures on the Vandever lease, the abandonment will be the sealing of the 1200 North haulageway at the boundary.

## 14. ANCILLARY INFORMATION

- 14.1 The proposed interim mining plan will not affect or change the power resource system, water requirements, personnel requirements, the social services or economics of the area, nor will it affect the people or the land use by the people.
- 14.2 The project will increase the income of Brown Vandever due to the royalties. His attitude is very positive towards the project. Additionally, per Clause 29 of the lease, the project will create some employment opportunities.

15. RECLAMATION

15.1 Since no land disturbance will be caused from the proposed interim mining plan, no reclamation plan is needed.

SUBMITTED  
*[Signature]*  
*[Signature]*

NAVAJO AREA OFFICE  
WINDOW ROCK, ARIZONA 86515

ARPM/Minerals

MAY 13 1980

**Memorandum**

**To:** Area Mining Supervisor, Conservation Division  
U. S. Geological Survey, Albuquerque, New Mexico  
Assistant

**From:** Area Director

**Subject:** Proposed Interim Mining Plan and Original Exploration Plan  
on Navajo Allotted Mining Lease No. NDO-C-14-20-8396

We have reviewed the subject plans and submit the following comments for your information and consideration for implementation into the proposed plans.

**Exploration Plan**

Paragraph 2 - What is proposed for ventilation in the 1200 Hargrave Drift and its crosscuts since no surface disturbances are proposed?

Paragraph 3 - Archeological Clearance shall be required for all of the SW $\frac{1}{4}$  of Section 18, T. 13 N., R. 10 W., prior to the commencement of the described exploration operation. The Navajo Area Archeologist in the Environmental Quality Office at Window Rock shall be kept advised of all archeological surveys, reports and any necessary mitigating actions during the duration of this project.

Paragraph 17,- Recontouring and revegetation shall include all access roads and other surface disturbances resulting from the exploration operation.

**Addendum to Exploration Plan**

**6. Endangered Species**

Endangered species (Flora or Fauna) are known to inhabit the area. A list of Flora and Fauna in the area should be requested from U. S. Fish and Wildlife Service in Albuquerque. If there is any indication of endangered species, then a Section 7 Consultation must be considered.

**Interim Mining Plan**

2.7 Archeological studies should be coordinated with Quality Office, Window Rock.

6.3 See paragraph 6 comment under Addendum to Exploration Plan.

12. **Health and Safety Measures**

This section needs to be expanded and the following actions discussed in detail.

Ground Control  
Safety and Health Training and Inspections  
Hazard Training  
Provisions for Ventilation and Dust Control  
Fire Control  
Havilage Safety  
Emergency Escapeways and Procedures

*Ted S. Koenig*

cc: Environmental Quality  
Attention: Mr. Holt

bcc: TRR/1105-13a(2) N00-C-14-20-8396  
Minerals Chrono  
Chrono  
M&F  
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